

ABSTRACT

BACKGROUND AND OBJECTIVES:

The term Nephrotic Syndrome refers to classic tetrad of proteinuria, hypo-proteinemia, edema and hyperlipidemia. Though it was an ancient disease, it was recognized as Nephrosis in early part of 20th century. It has been classified as primary, secondary to some other diseases and genetic causes.

MCNS [minimal change Nephrotic syndrome] is the most common primary type of Nephrotic syndrome in children due to podocyte effacement. And GCs [glucocorticoids] is the standard therapy for this disease and majority of children shows good clinical remission. Some children may show relapse [frequent or infrequent], SDNS, SRNS. So, chronic consumption of GCs leads to many post-drug effects mainly osteoporosis.

This study was done to assess the reduction in bone mineral density among children who completed steroid therapy for Nephrotic Syndrome. MCNS was taken exclusively for this study.

METHODS:

It was a prospective study done among NS children attended Nephrology OPD, IPD and paediatric OPD and IPD. Initially load was set as 40 – 60

cases and extended to 100 cases. The GCs were given according to APN [→is initial therapy for 6 weeks of daily PREDNISOLONE at a single dose of 60 mg/m²/day[2mg/kg] in single or divided doses [maximum dose 60mg/day] followed by 40mg/m²/day[1.5mg/kg] every other day for an additional 6 weeks. All the children with first episode of NS were evaluated for reduction in BMD by using bone bio-chemical markers such as serum Ca²⁺.serum Alkaline PO₄ase, serum P⁺ and serum vitamin D₃ levels both in before drug regimen and post drug. Anthropometry measurements, Systemic examinations, CXR, USG, Ur routine for albumin, Ur culture sensitivity were done. All children were supplemented with oral calcium.

RESULTS:

The majority of children shows the complete clinical remission of disease for gluco-corticoids.The results shows that the children shows drug induced osteoporosis, reduction in bone mineral density.Though the children were supplemented with the calcium,they showed reduction in BMD.

INTERPRETATION AND CONCLUSION:

The results shows there was reduction in serum Ca²⁺ level in pre-drug status and in complete remission condition there was increase in se Ca²⁺ level with oral Ca²⁺ supplementations, but presented at lower limit.

The corrected Ca^{2+} which was biologically available was also improved in post-drug condition, but in lower limit [$<8.5\text{mg\%}$]. Similarly there was reduction in vitamin D3 in NS due to disease per se and due to drug effect.

In addition to our study, there was increase in other parameters such as serum P^{+} and serum Alkaline PO_4ase due to PTH in calcium and Vitamin D3 metabolisms.

It is to conclude that, NS disease per se in addition to GCs which is the standard therapy for the disease cause combined effect in reduction in BMD. The oral calcium supplementation is not enough to compromise the osteoporosis induced by the drug. So, these children should have increased intake of dietary calcium. All children should also supplemented by vitamin D as per RDA. These children should undergo regular assessment in reduction BMD to know the osteoporosis status, in order to prevent growth failure and pathological fractures.

KEY WORDS: Nephrotic syndrome, Proteinuria, Osteoporosis, Prednisolone.